DIGITAL HOSPITALS

HOW HOSPITALS ARE GOING TO BE CHANGED IN FUTURE BY BEING DIGITAL

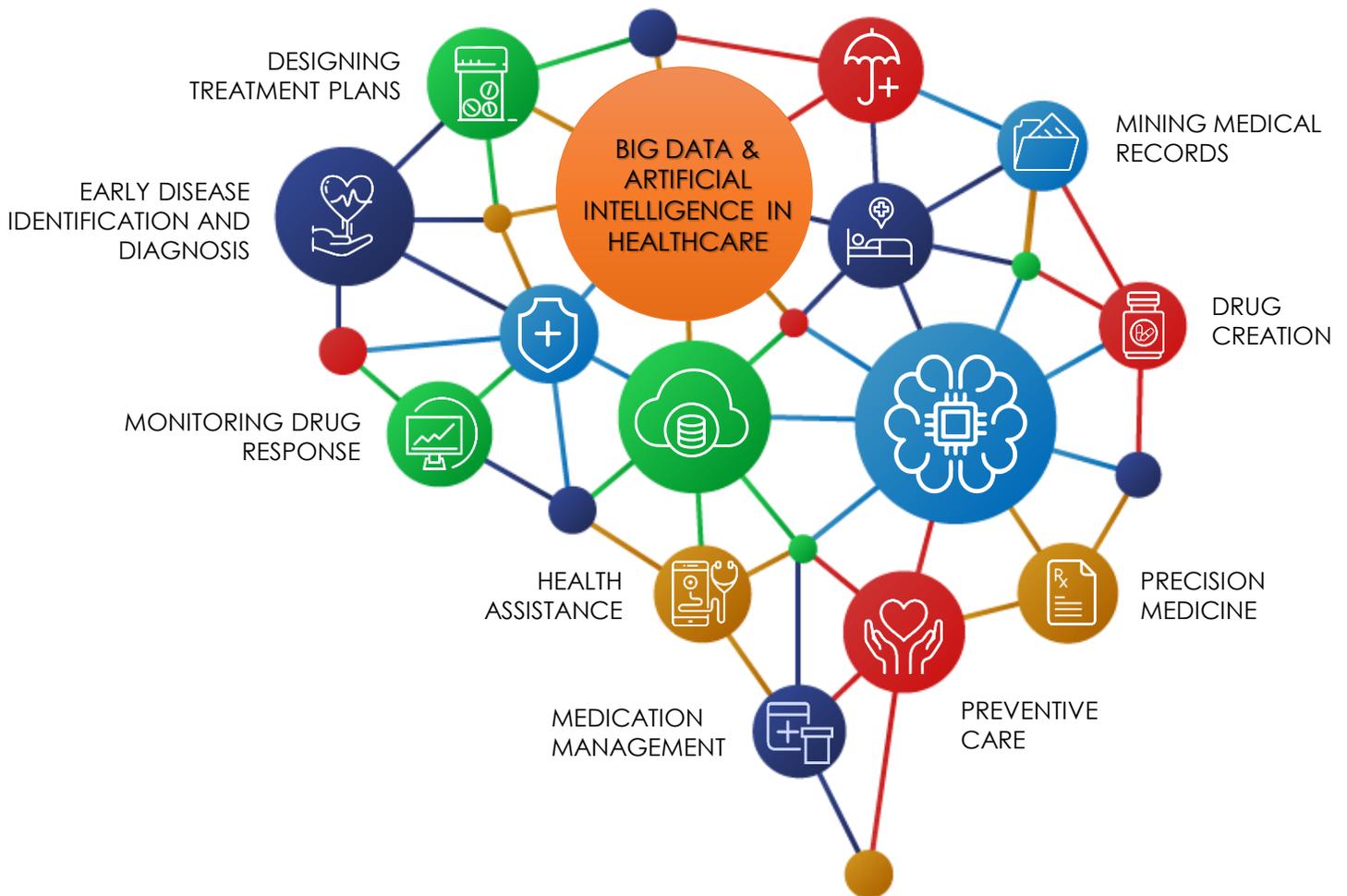A Scalable Health Thought Paper

TABLE OF CONTENT

BIG DATA AND ARTIFICIAL INTELLIGENCE ARE BUILDING A NEW HEALTHCARE LANDSCAPE

Advances in digital health are changing the medical landscape. By embracing digital transformations, hospitals are able to grant providers access to real-time patient records coupled population health data enhanced by artificial intelligence offering greater insights for improved patient outcomes. With the advancement of wearables and other remote diagnostic and monitoring devices, patients can receive quality care anywhere a connection to the cloud exists.

Healthcare providers now have a whole host of tools and resources at their fingertips to access real-time data, monitor patients remotely and make better care decisions. This access to better data frees the patient from the physical restraints of the hospital environment. This lessens the dependence on admitting patients into large hospitals for extended stays at exorbitant costs to both payers and patients.

The adoption of digital transformations will be reflected in a new healthcare landscape. By removing the need for a patient and provider to be in the same location, new care options will be available to service the patient's needs wherever and whenever they arise. The result will be more patients receiving treatments locally in out-patient or home environments. Patients will have more control over their personal data and play a greater role in the care decisions. This, in turn, will lead to greater care outcomes, enhanced operational efficiencies, and the reduction of overall costs.

DESIGNING TREATMENT PLANS

EARLY DISEASE IDENTIFICATION AND DIAGNOSIS

MONITORING DRUG RESPONSE

HEALTH ASSISTANCE

MEDICATION MANAGEMENT

BIG DATA & ARTIFICIAL INTELLIGENCE IN HEALTHCARE

MINING MEDICAL RECORDS

DRUG CREATION

PRECISION MEDICINE

PREVENTIVE CARE

TRADITIONAL HOSPITALS ARE BROKEN

Lacking effective communications channels, healthcare providers built the traditional hospital model where all specialties were housed in one location. Patients were admitted to the hospital environment for comprehensive care and observation. This environment was often overwhelming and traumatizing to patients. And it failed to yield the efficiencies being delivered by today's digital health solutions.

Patient information was kept in paper charts resulting in delays as information traveled between departments. A considerable amount of time was required for staff to locate, update and maintain patient data in this format - time that could have otherwise been directed to patient care. Antiquated legacy systems, departmental data silos, and the inefficiencies of a central hospital environment frustrated providers, created additional costs and overhead and ultimately undermined patient care.

Furthermore, this cost structure meant that building a new facility was an expensive endeavor. The economics of the hospital environment limited local access to acute care. In the rural environment, it was not cost-effective to build large hospitals. Rural patients often had to travel great distances to receive critical care. This meant time away from their loved ones and extended stays in a distant city with no familiar support system during the recovery. Because resources were often not available, hospital stays were extended to compensate for the lack of local facilities.

Extended stays are costly and expensive. According to the Centers for Disease Control and Prevention, extended stays increase the risk of a Hospital Acquired Infection such as sepsis. Resulting in even longer stays or readmission. Greater expenses, inefficiencies, and readmission coupled with frustrations of both patients and caregivers alike suggest the hospital model is broken.

PATIENTS ARE NO LONGER PASSIVE RECIPIENTS OF CARE

They are becoming more engaged with providers, researching treatment options on their smartphones and expecting to be treated in a manner and an environment of their choosing, most likely outside the traditional hospital environment. Advances in digital health options let them FaceTime with doctors from their tablets, email, and text with providers and consult with specialists without having to travel great distances. These and many other digital advances contribute to a better overall patient experience.

Previously, doctors were the final authority on patient care. That dynamic has shifted allowing the patient to be a partner in deciding courses of treatment and giving them information and tools to improve care outcomes. Wearables allow individuals to track and record vital health indicators and reinforce positive outcomes for treatment adherence. Further, privacy and data laws are allowing patients greater access to their personal data and control over who has access to it.

Digital tools and services offer individuals access to care that will address all their holistic health needs in a way that is simple and convenient. They will be able to use their smartphone to see test results, make appointments, interact with care providers and manage their bills online. Apps allow patients greater insights into their health status by tracking fitness activity and other targeted vitals, so that they can see progress or alert healthcare providers when problems arise. Wearables and other IoT options offer portable diagnostic tools wherever the patient is, thus reducing the need for office visits and extended hospital stays. Social media offers communities of support and knowledge around various health concerns allowing the patient to further take control of their care options.

These advances allow for the collaboration of all stakeholders for better care outcomes. By lessening the dependence of where they are treated, providers can meet patients where they are to provide a full range integrated services that are least disruptive to their daily lives. By increasing the ease and access to healthcare, patients will be more likely to seek earlier treatments, interventions and ultimately greater adherence to care recommendations.

PROVIDERS ARE MORE EFFICIENTLY ABLE TO MANAGE THEIR WORKLOADS

Electronic Medical Records coupled with machine learning based on Population Health data equips the healthcare professional with real-time data and trends allowing them to provide the best care options to their patients. Further, IoT devices allow for remote monitoring and reporting assuring the doctor he has current stats on his patients regardless of where they are recovering. Video conferencing with the patient allows the provider to see and hear how the patient is responding to the treatment plan without scheduling an expensive in-person visit. No waiting room time, no forms to fill out - resulting in happier patients more likely to adhere to the prescribed treatment plan.

AI & Machine Learning to fill the knowledge gaps for better outcomes. Population health data and the latest medical advances and research result in an exploding amount of data available to consider when providers are considering care protocols. Doctors are required to spend an inordinate amount of time reading medicals journals and researching clinical trials. AI will allow computers to compile the most relevant data and put this information at doctors' fingertips with a simple search. With the latest real-time data, doctors and patients will be able to make informed decisions as to the best approach for that patient.

Video conferencing will allow doctors to consult with peers from around the world to close knowledge gaps, share emerging expertise and improve population health outcomes. EHRs and cloud-supported data centers will allow healthcare providers access to real-time patient data from anywhere there is WIFI. Wearables and other forms of IoT will allow patients to be monitored remotely and in real-time, lessening the need for extended inpatient stays.

PAYERS ARE FOCUSED ON KEEPING YOU HEALTHY

Digital transformation and a shift to a valued-care approach are changing the healthcare landscape for the better. Payers and providers understand it is more effective to help you stay healthy than to allow conditions to advance to the stage where hospitalization is the only option. Many chronic diseases can be offset or progression delayed with lifestyle changes supported by wellness programs.

For example, a pre-diabetic patient who is showing early symptoms can be offered a wellness program focused on nutrition and exercise, which has shown to greatly reduce disease progression.   This empowers the patient with tools to manage their health, keeps them healthier and hopefully out of the hospital. This approach has proven to realize considerable cost savings to payers as opposed to if the patient were to develop diabetes and the resulting treatment options then required. Early intervention allows the patient to continue with his daily activities, remain at home, remain at work, and be statistically happier overall.

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The shift to a value care approach coupled with digital advances is resulting in a new healthcare landscape. While the need for hospitals will continue to exist - the care of more and more patients will shift to local, smaller, specialty facilities supported by eHealth advances. Digital Health technologies will enhance the communications between patients, providers, and payers by allowing for remote monitoring, real-time data collection and the elimination of the paper-intensive, data silos of the current legacy systems.
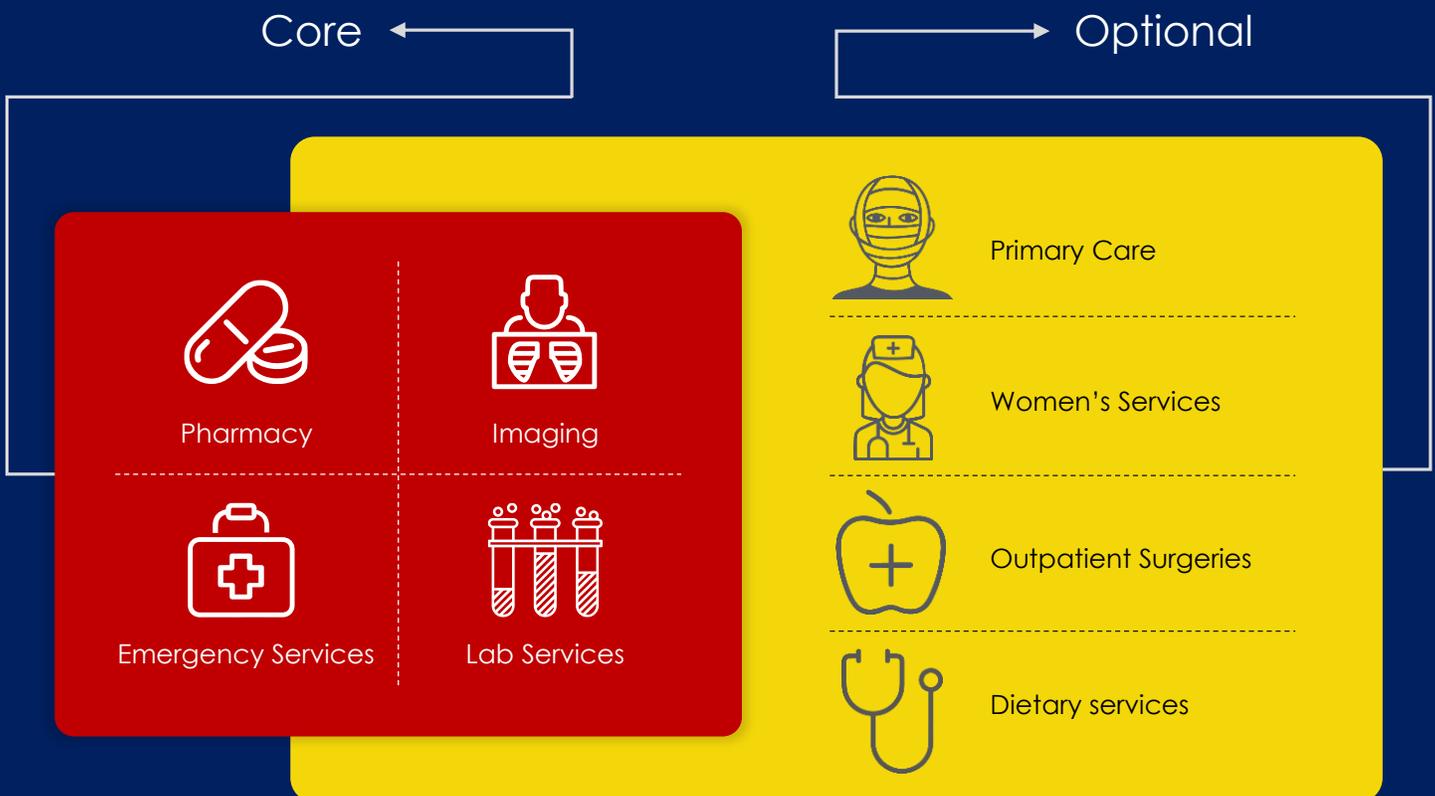
A NEW HOSPITAL LANDSCAPE EMERGES

As stated, traditional hospitals will continue to exist for acute care. But healthcare's dependence on them will lessen. In the new digitally enhanced environment, care will be offered in the most efficient environment. If remote monitoring and in-home care allow a patient to remain at home, it benefits both the patient and the healthcare system. Location of care will become a consideration of convenience, patient choice, and support services. As long as the local facility is digitally connected to the medical expertise necessary to support your care in real-time, patients can be treated either at home in a conveniently located local facility.

The new landscape will be comprised of outpatient clinics, same-day surgery centers, free-standing emergency rooms and micro-hospitals (typically, eight beds or less). This new environment will offer a cost-effective approach to supporting rural communities and other areas where a full-blown hospital is prohibitive. Furthermore, house calls may no longer be a thing of the past.

Whether it is sending a healthcare provider to patient's location or chatting with your doctor on FaceTime, patients can receive quality care without ever leaving the comfort of their home. The need for forms and onerous paperwork will be replaced by electronic bracelets or other digital tools that will capture the patient's entire health history and current medical status. By eliminating the administrative aspect of treatment, the patient experience will be all about care. The future of healthcare is mobile, personalized, and user-friendly.

KEY FEATURES OF MICRO-HOSPITALS

Core ← → Optional

Pharmacy

Imaging

Emergency Services

Lab Services

Primary Care

Women's Services

Outpatient Surgeries

Dietary services

THE FUTURE HEALTHCARE

AI Driven Real-time Patient Monitoring

Connected Care

Providing Patient-Centric Care
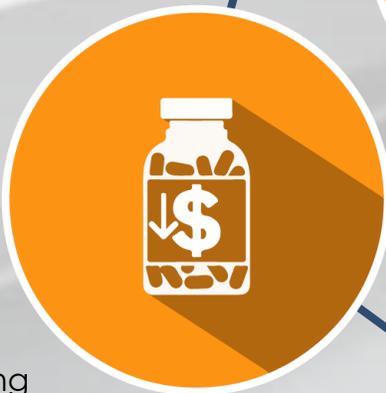
Future Healthcare

Automatic Treatment or Recommendation

Medical image diagnostic through Machine Learning

Reducing Healthcare Costs

Predictive Analytics to Improve Outcomes

Drug discovery with the help of machine learning

# DATA AND AI CREATE A MORE EFFICIENT HEALTHCARE ENVIRONMENT

Patients will receive greater care and be more involved in their care options through informed and continued feedback from their providers. They will have the ability to be monitored in real-time allowing for earlier medical intervention should a problem arise. And should they require more intensive care, they will be able to leave the hospital environment sooner and convalesce in the familiar surroundings of their own home.

Providers will have access to real-time patient data from which to make better care decisions. They will have a more efficient avenue to communicate with patients for feedback and monitoring. This will allow them to track treatment protocol compliance and overall

patient recovery more efficiently. Through artificial intelligence and population health data, they will be apprised of developing trends and the latest protocols to fill in knowledge gaps and allow them to offer better care options.

Lastly, payers will benefit by embracing value-care initiatives that will offer wellness and intervention programs to patients identified by population health statistics. Shorter, more productive hospital stays will result in cost savings and greater patient satisfaction. Greater data transparency coupled with machine learning will reduce fraud and waste.

Together, Big Data and Artificial Intelligence are building a new healthcare landscape.
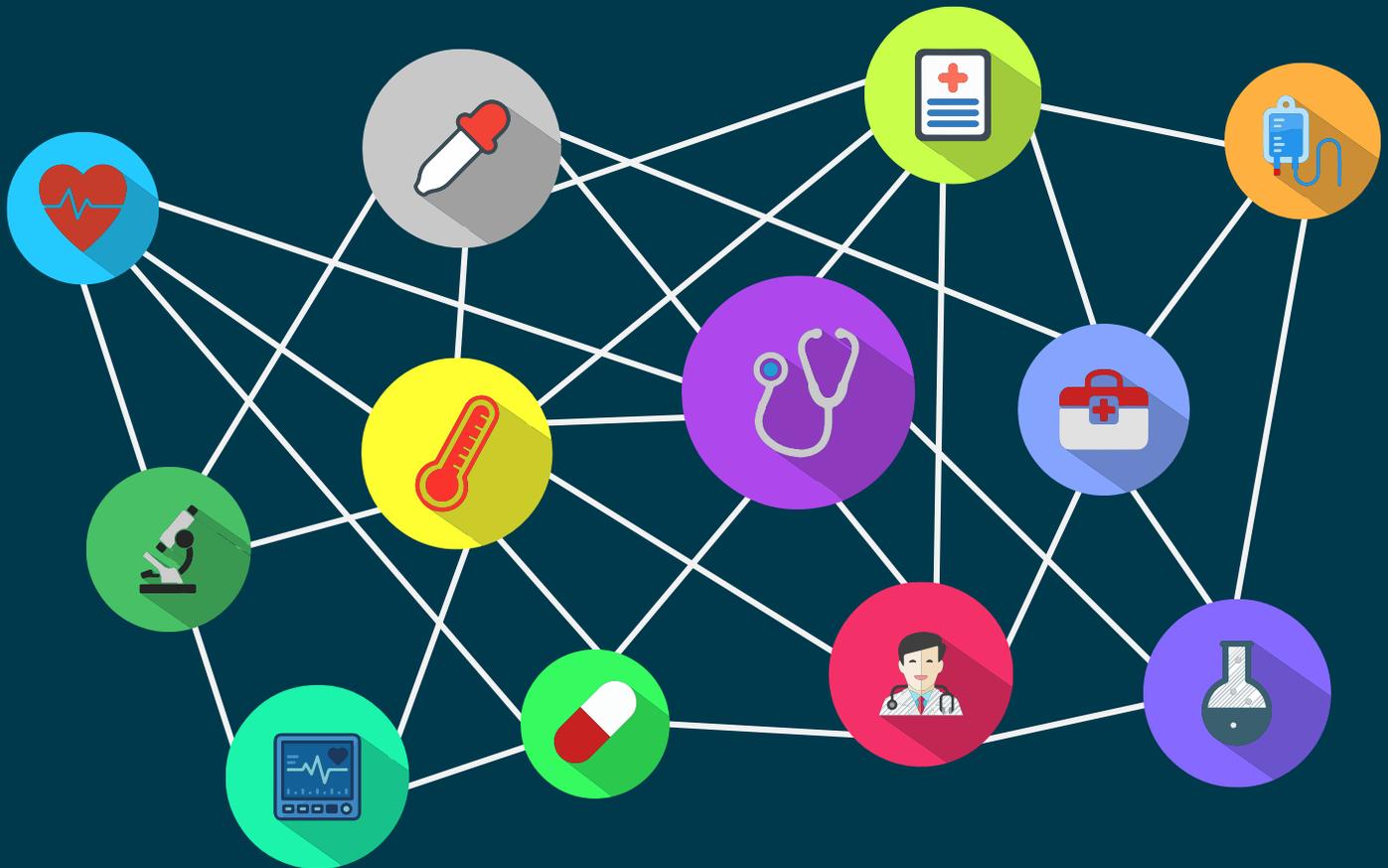
About Scalable Health

Scalable Health is healthcare division of Scalable Digital focused on providing innovative products and solutions in healthcare and life sciences market.
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